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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/653,656	09/01/2000	Lior Shabtay	4-8	5487

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EXAMINER	
JUNG, MIN	

ART UNIT	PAPER NUMBER
2663	

DATE MAILED: 03/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/653,656	SHABTAY ET AL.	
	Examiner	Art Unit	
	Min Jung	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28,32-41,45 and 46* is/are rejected.

7)☒ Claim(s) *29-31,42-44,47 and 48* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 17, "the IP destination address" lacks antecedent basis.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology

Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-2, 4-9, 11-18, 20-21, 23-28, 32-35, 37-41, and 45-46 are rejected under 35 U.S.C. 102(e) as being anticipated by Kloth et al., US 6,842,453 (Kloth).

Kloth discloses a method and apparatus for implementing forwarding decision shortcuts at a network switch.

Specifically, regarding claims 1 and 7, 11,12, 13, 14, 15, 17, 18, Kloth teaches a method comprising receiving, by the acceleration switch, frames directed to one of one or more routers or switches of the network (col. 3, lines 43-46, col. 5, lines 7-10, and col. 6, lines 21-26); determining, for at least some of the received frames, whether the frames belong to a first list of frame groups, defined by values of a plurality of frame parameters (using source MAC address and destination MAC address, IP destination address, IP destination/source pair addresses or an IP source/destination pair addresses and protocol port number, determination is made as to whether the frame is to be routed by the router, or by the switch, and to which frame group the frame belongs, col. 6, lines 29-34, col. 7, lines 3-5, and col. 8, lines 17-24, note that the first list reads on the forwarding table 600 of Fig. 6); and routing, by the acceleration switch, at least some of the

received frames, the routed frames being selected responsive to the determining (col. 8, lines 24-34).

Regarding claim 2, Kloth teaches frames having a layer-2 destination address of the router (col. 5, lines 15-34).

Regarding claims 4 and 5, Kloth reference meets the limitation by teaching routing the received frames using information in an entry of the first list of frame groups which matches the routed frame (the shortcut table 700 is used to route the received frames which have an entry in the table, col. 7, line 60 – col. 8, line 16).

Regarding claim 6, Kloth teaches bridging frames which were determined not to belong to a group in the first list according to their layer-2 information (when the destination MAC address and the source MAC address do not have a shortcut bit set, then the frame is forwarded to the router for normal router function, Fig. 5, steps 504, 512, and 530, col. 6, lines 48-50, and col. 8, lines 17-24).

Regarding claims 8 and 23, Kloth teaches that the switch examines and routes only high-volume data traffic frames that require simple routing operations, and it does not process control or other router specific frames. See col. 5, lines 31-34. From this remark, it is clear that a certain determination is made for control frames so as to not process them at the switch.

Regarding claim 9, Kloth teaches frames of a connectionless protocol (IP, Internet Protocol).

Regarding claim 16, the two parameters not required in order to perform the routing would read on the destination MAC address and the source MAC address of the frame in Kloth, because although a determination is made using the MAC addresses, actual routing does not require the MAC address, but uses IP addresses instead.

Regarding claims 20 and 25, 26, the additional list of frame groups read on the frame group entry shown in the shortcut table 700 of Fig. 7. The switch routes the frame using the shortcut table when there is a match. The step of 'determining for frames directed to any of a predetermined group of ports" is inherent in Kloth because from the teaching of port number being used as one of the parameters, it is clear that port numbers are included as a part of frame headers to direct the frames according to the port numbers.

Regarding claim 21, one or more parameters read on the IP destination address, IP source address, and the protocol port of Kloth. See Fig. 7, and col. 8, lines 1-7.

Regarding claim 24, Kloth teaches determining for non-leading frames of a connection-based protocol. See col. 3, lines 43-53. Note that TCP is a connection-based protocol.

Regarding claims 27, 28, and 32, Kloth teaches that MAC addresses and their associated shortcut bits are checked to see if the frame belongs to a group which need to be forwarded to the router. If it is determined that the frame should not be forwarded to the router, then the frame parameters are compared to the list in the shortcut table 700.

Regarding claim 33, Kloth teaches a method comprising: providing, in the acceleration switch, a plurality of lists of groups of frames used for routing (table 600 of Fig. 6, and table 700 of Fig. 7); receiving, by the acceleration switch, frames directed to one of one or more routers or switches of the network (col. 6, lines 21-26); comparing at least one of the received frames to at least one of the plurality of lists (col. 6, lines 43-50); and routing, by the acceleration switch, received frames for which a match was found in the comparison (col. 5, lines 15-30). See col. 3, lines 41-67.

Regarding claim 34, Kloth teaches different sets of parameters for different lists in that MAC addresses are used for the table 600, and IP addresses and port numbers are used for table 700. See Figs. 6 and 7.

Regarding claim 35, Kloth teaches making comparisons in both table 600 and table 700.

Regarding claims 37, 38, 39, , Kloth teaches an acceleration switch having all the functions of the elements recited. Specifically, Kloth teaches at least one table which lists groups of frames defined by a plurality of parameters of the frames (Table 600 and table 700); the function of creating entries in the at least one table responsive to frames received by the switch (col. 7, lines 53-66); the function of comparing and determining whether the frames belong to one of the groups in one or more of the at least one table (col. 8, lines 10-11, and 17-24); and the function of routing frames directed to at least one router or routing switches for which the comparator found a matching group in the one or more of the at least one table (col. 8, lines 24-34). The switch with functional blocks is

shown in Fig. 3. The switch of Kloth shows functional elements which do not use the same names, but Kloth inherently teaches the recited elements since the corresponding functions are taught.

Regarding claim 40, Kloth creates entries in the table irrespective of the destination MAC address of the frame. Note that although the hardware shortcut bit is checked for destination MAC addresses, entry creation is done irrespective of actual destination MAC addresses.

Regarding claim 41, one table comprising a plurality of tables which define groups of frames based on different sets of parameters read on the Table 700 showing four different entries, with the four different entries reading on the claimed plurality of tables.

Regarding claim 45, the claim further limits the claim 37 by further claiming one router. Kloth shows a router (250) in addition to an acceleration switch (300). See Fig. 2.

Regarding claim 46, Kloth teaches a method of creating an acceleration routing table, comprising: receiving frames which include routing data (col. 6, lines 21-28); determining, responsive substantially only to information within the received frames, whether frames routed based on the routing data of the received frames may violate policy rules (decision blocks 504 and 512 of Fig. 5, in which decision is made as to whether or not the shortcut bit is set); and creating entries in an acceleration routing table based on routing data which may not cause violation of policy rules according to the determination, wherein entries are not created based on routing data which may cause violation of policy rules

according to the determination (an entry is created at block 510, col. 7, lines 48-59, violation or non-violation of policy rules would read on the decision blocks 504, 512, and may also include decision blocks 506 and 508, and 514, 516, and 518).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 3, 10, 19, 22, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kloth.

Regarding claims 3 and 22, Kloth, as applied above, fails to specifically teach routing the frames based on substantially only the destination address of the frames. Kloth bases the routing at least on the destination MAC address and the source MAC address. However, it would have been obvious for one of ordinary skill in the art at the time of the invention to design the decision mechanism to base its routing decision only on the destination address since such implementation would result in a more simple system, which may be more desirable depending on the system needs.

Regarding claim 10, Kloth fails to specifically teach that some of the frames are directed to well-known UDP ports. Kloth, however, teaches frames

being directed to a port by teaching that the flow information includes port number. UDP is a protocol used within the boundary of TCP/IP for describing how messages reach application programs within a destination computer. Therefore, with the teaching of TCP/IP as an environment in Kloth, it would have been obvious for one of ordinary skill in the art at the time of the invention to specifically utilize UDP port for handling transport layer datagrams of a connectionless kind.

Regarding claim 19, Kloth fails to specifically include a parameter defining protocol of the frames. Kloth, however, suggests that his invention could be implemented with various different protocols, with examples being Internet Protocol and Internet Packet Exchange Protocol. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to readily implement the frames to accommodate different protocols by including a field for identifying the protocol.

Regarding claim 36, Kloth fails to teach determining to which of the at least one of the plurality of lists to compare each frame responsive to the value of one or more fields of the frame. Kloth, in one instance, teaches comparing MAC addresses only and forwarding packet (Fig. 5, decision block 504 – NO – decision block 512 – NO – forward packet), in which case the table 700 is not used. In this example, the decisions lead the method to utilize only one list out of the two. Thus, although the specific teaching is lacking for determining which list to compare the frames, it would have been obvious for one of ordinary skill in the art at the time of the invention to implement the method to decide on whether to

use only the table 700 or both the table 700 and 800 depending on the MAC address values by including an additional lookup table to make a quick decision.

Allowable Subject Matter

8. Claims 29-31, 42-44, and 47-48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Min Jung whose telephone number is 571-272-3127. The examiner can normally be reached on Monday, Thursday, Friday 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ
March 3, 2005

Min Jung
Primary Examiner